PATENT
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M.M.
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	)	
	)	
Ying Chih Chang et al.	)	Examiner: M. G. Baker, Ph.D.
	)	
Serial No.: 09/652,962	)	Art Unit: 1639
	)	
Filed: August 31, 2000	)	
	)	
Title: MACROMOLECULAR ARRAYS ON POLYMERIC BRUSHES AND METHODS FOR PREPARING THE SAME	)	

Commissioner for Patents
Alexandria, VA 22313-1450

DECLARATION UNDER 37 C.F.R. 1.131

Dear Sir:

We Ying Chih Chang, Curtis W. Frank, and Glenn McGall hereby state as follows:

1. We are the coinventors of pending claims 1 – 4 and 6 – 8 of the above identified patent application.

2. The invention of claims 1 – 4 and 6 – 8 was reduced to practice prior to July 2, 1999, as evidence by the laboratory notebook entries of inventor Ying Chih Chang:

a. reproductions of the front cover and pages 5, 23, 35, 51, and 70 – 73 from Ying Chih Chang's laboratory notebook, attached hereto as Exhibit A, show the

reduction to practice of the method of preparing a polymeric brush substrate claimed in the above referenced patent application. The experiments were performed at Stanford University at the laboratory of inventor Curtis W. Frank in the Department of Chemical Engineering, Stanford, CA;

b. pages 70 – 73 of the notebook represent the reduction to practice of at least claims 1 – 4 and 6 of the above identified patent application. Page 71 contains a description of the conditions used in the practice of the method of claim 1. In brief, glass and silica substrates were provided and the free radical initiator AIBN was coupled to the glass or silica substrate such that the free radical generation site was distal to the substrate. The substrate was then contacted with HEMA, a monomer, under conditions promoting free radical polymerization from the radical generation sites of the initiators, thus forming a polymeric brush. To confirm that the polymeric brush had formed properly, fluorescently labeled DNA strands were hybridized to the polymeric brush substrate and the product was scanned by UV-VIS spectroscopy. The results of the scans are shown on page 70 of the laboratory notebook. The results of the scans are also presented in chart and graphical form on page 72. For reference, FIG. 7 of the patent application shows similar results to those shown on page 72;

c. the methods used to make the polymeric brushes presented on page 71 was a method that produced living free radical polymerization, thus proving the reduction to practice of claim 2;

d. the example of the method of preparing a polymeric brush presented on page 71 used both glass and silica substrates, thus demonstrating the reduction to practice of claim 3;

e. the monomer HEMA, used in the method of preparing a polymeric brush

shown on page 71, contains a vinyl group, thus demonstrating the reduction to practice of the subject matter of claim 4;

f. the monomers, which are represented as structures on page 51 were used to make polymeric brushes according to the method of claim 6 and thus demonstrate the reduction to practice of hydroxyl, amino, and carboxyl groups on a polymeric brush. The sulfhydryl group is demonstrated as being reduced to practice on the bottom of page 23 of the laboratory notebook because the free radical initiator DATMS, which contains sulfhydryl groups was used to form the polymeric brush according to the method of claim 6; and

g. vinyl acetate, recited in claim 8, is shown on page 5 of the laboratory notebook and is known to be useful for radical chain polymerization. This compound is a species of the genus of monomers of claim 6, and is chemically similar to other monomers used to make polymeric brushes of the present invention, for example, polyacrylamide, acrylamide, HEMA, and other monomers.

3. Each of the dates deleted from Exhibit 1 is prior to July 2, 1999.

I hereby declare further that all statements made herein of my own knowledge are true and that statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like are punishable by fine and/or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that any such willful false statement may jeopardize the validity of this application or any patent resulting therefrom.

Ying Chih Chang

Curtis W. Frank

shown on page 71, contains a vinyl group, thus demonstrating the reduction to practice of the subject matter of claim 4;

f. the monomers, which are represented as structures on page 51 were used to make polymeric brushes according to the method of claim 6 and thus demonstrate the reduction to practice of hydroxyl, amino, and carboxyl groups on a polymeric brush. The sulfhydryl group is demonstrated as being reduced to practice on the bottom of page 23 of the laboratory notebook because the free radical initiator DATMS, which contains sulfhydryl groups was used to form the polymeric brush according to the method of claim 6; and

g. vinyl acetate, recited in claim 8, is shown on page 5 of the laboratory notebook and is known to be useful for radical chain polymerization. This compound is a species of the genus of monomers of claim 6, and is chemically similar to other monomers used to make polymeric brushes of the present invention, for example, polyacrylamide, acrylamide, HEMA, and other monomers.

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I hereby declare further that all statements made herein of my own knowledge are true and that statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like are punishable by fine and/or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that any such willful false statement may jeopardize the validity of this application or any patent resulting therefrom.

Ying Chih Chang

Curtis W. Frank

Glenn McGall 5/14/03

Glenn McGall